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LEOPOLD AUENBRUGGER AND THE
HISTORY OF PERCUSSION. ۞۞۞۞۞۞۞۞۞۞۞۞

An Address Given at the Opening Exercises of the Department of Medicine, University of Michigan, September 27, 1898. ۞۞۞۞۞۞۞۞۞۞۞۞ By George Dock, A.M., M.D., Professor of Medicine, University of Michigan. ۞۞۞۞۞۞۞۞۞۞۞۞

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LEOPOLD AUENBRUGGER AND THE HISTORY OF PERCUSSION.

AN ADDRESS GIVEN AT THE OPENING EXERCISES OF THE DEPARTMENT OF
MEDICINE, UNIVERSITY OF MICHIGAN, SEPT. 27, 1898, BY GEORGE
DOCK, A. M., M. D., PROFESSOR OF MEDICINE.

Ladies and Gentlemen: The duty of welcoming you here is a pleasant one, and I am proud to have been chosen on this occasion to speak to you in the name of the Faculty. At this time, the only one when all classes and all members of the Faculty meet together, it has become a custom, and I think a good one, to begin the year's work with some general remarks, in order, as it were, to break the ice. Perhaps some of you, here for the first time, think that now the veil will be torn away from the mystery you seek. And it might be useful could one lay before you a panorama of all the work of the next four years, each part clearly explained in relation to the others. No doubt much time might be saved you, many errors avoided. On the other hand, however, the gradual unfolding of the course, the unexpected difficulties, finally overcome by earnest efforts—these add interest to your work and are characteristic of what you will encounter in later life. Instead of attempting a detailed account of the medical curriculum, I have thought of examining with you a page from the history of medicine. For this, like any other history, has plain lessons for those who are willing to learn, and holds out warnings and examples in every chapter.

The manipulation known as percussion is so familiar now, even to non-medical people, that it seems strange when we remember that it is comparatively new. In ordinary life percussion is obviously very old. The potter, the mason, the carpenter, and many others, all use percussion, in some form, daily, and have from the beginning of their handicrafts. Percussion of the abdomen has been practiced at least since the time of Hippocrates, for the drum-like note in tympanites—hence the name—is mentioned by him and by many writers since his time. The history of percussion of the thorax begins with Leopold Auenbrugger, who was born

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on the 19th of Nov., 1722, the son of a well-to-do inn-keeper of Gratz, in Styria. Having taken his preliminary education in his native town, Auenbrugger studied medicine in Vienna, where van Swieten was giving lustre to the faculty of the university. In 1751 he was appointed physician to the Spanish military hospital, then the largest and finest in Vienna. Here he not only carried out the duties of his position with great fidelity, but in addition, "*inter labores et taedia*," as he tells us, made the investigations that immortalized him. It is worth noting that Auenbrugger's scientific labors did not lessen his interest or his value in the practice of medicine. From those who had been his patients during that time we learn that he was remembered not only on account of his medical skill, but also by reason of his kindness, generosity and charity to all classes. Not on account of his discovery, but for his other deeds, he was ennobled by the Emperor Joseph II, and it throws an interesting light on the character of the man when we learn that he chose the patent of nobility, which passed to his children, rather than a small pension which would have ceased with his life. Changes in the administration of the hospital led to his retirement, and he then devoted himself to practice and to numerous works of philanthropy. He was honorary examiner in the University of Vienna, published timely articles on medical topics, and as an evidence of his versatility wrote the libretto for an opera. On the 17th of May, 1809, being in his 87th year, he died, apparently unaware of the dawning of his fame.

Auenbrugger published his great discovery in 1761, in a small volume entitled: "*Inventum novum ex percussione thoracis humani ut signo abstrusos interni pectoris morbos detegendi*." This, he says, he was led to publish, not on account of a "*pruritus scribendi*," nor of exuberant theorizing, but from having, during seven years of observation, discovered the value of the method he was about to describe. The work is written in Latin, in a style that is good, though laconic, and on account of the latter and of changes in medical views, the aphoristic sentences are at times difficult to understand.

The book begins, after a preface, with the axiomatic statement: "The thorax of a healthy man resounds when struck." Then follow directions for percussing, in connection with which it may be mentioned that Auenbrugger not only percussed with the tips of all the fingers of one hand, but, as is not generally known, over a thin shirt, and with a soft leather glove on his hand. After these technical details come anatomic facts. The resonance of the sternum and vertebral column are mentioned, the resonant areas in the thorax are accurately described. The differences of the sounds

in thin, moderately fat and very fat persons, and the relative dulness caused by the pectoral muscles, breasts and scapulæ are all clearly noted. Auenbrugger was familiar with the modification of the sounds in the different phases of respiration, rediscovered by various observers since his time. He advised that the physician practice percussion on large numbers of healthy people of various figures, in order to familiarize himself with the natural variations. Proceeding from a firm experimental basis, he laid down the fundamental law of topographic percussion, viz., that when the chest gives a sound different from that in the corresponding place in the other side, there is a disease in the thorax. His dictum that serious diseases may remain concealed in the thorax without giving any signs of their existence, and discoverable only by percussion, is even now borne in mind less frequently than it should be. The total dulness over pleural effusions, compared by the author to the sound of the thigh, as we still do, was correctly ascribed to the exudate. Auenbrugger showed, by injecting fluid into the pleural cavities of cadavers, how the line of dulness corresponded to the level of the fluid. He was aware of the alteration of percussion tone over the compressed lung in hydrothorax, the various changes of resonance in the different stages of pneumonia, and the prognostic value of the different localizations of the latter.

Auenbrugger was far from thinking he had discovered a method applicable to all diseases of the lungs, for he mentioned some that cannot be detected by percussion, or that produce no alteration save a slight change of pitch. He also admitted that a limited area of consolidation, a small tubercular focus, a small cavity, or an inconsiderable effusion remain undetected by percussion.

The data regarding the heart are less clear than those on the lungs, but here, too, evidence of Auenbrugger's closeness of observation is shown by the fact that he recognized the acute dilatation of the heart in pneumonia.

Such were some of the discoveries Auenbrugger gave the world, discoveries that we can no more think of doing without than we can those of a Magellan or a Stephenson. What was the immediate result? Were journals, books and lectures full of the name of Auenbrugger? Were the facts he announced applied in practice, the discoverer given praise, titles and prizes, or did he seek honor and remuneration by virtue of patents? Nothing of the kind; least of all the latter. Percussion as an aid in diagnosis was neglected for almost fifty years, until Corvisart, Napoleon's physician, an undisputed authority on diseases of the heart, made the matter known. This he did by publishing a translation of the *Inventum Novum*,

with commentaries, filled with enthusiastic and magnanimous praise of the author. Coming as this did with the remarkable development of medicine in France, in the beginning of this century, the subject could no longer be neglected. It became of greater importance after the discovery of auscultation by Laennec, a few years later; still more by the investigations of Piorry, who introduced mediate percussion, or the use of the pleximeter (but who also added much that was erroneous), and it acquired rational and solid grounds from the anatomical and clinical researches of Skoda. Since then numerous details have been filled in by many others, among whom Flint and DaCosta, in America, are always to be remembered.

It is worth while trying to learn how it came about that so important a discovery should have had so strange a history. Auenbrugger himself, in a tone of melancholy somewhat in contrast to his modesty and simplicity, predicted that his work was likely to meet such obstacles as envy, malice, detraction and calumny, "for such was the fate of all who made discoveries or improvements in Art or Science." This may have been true to a certain extent. Auenbrugger was overshadowed at the time by the great fame of his teacher, van Swieten, arbiter in Germany of medical affairs, and of whom Auenbrugger himself frequently speaks in tones that, even allowing for the Latin forms, seem little short of servile. The ponderous work of van Swieten is never read now, for it belongs to a past epoch of medicine. In the volumes that appeared after Auenbrugger's discovery the latter is not mentioned. De Haen also, director of the medical clinic in Vienna, ignored the matter. De Haen's successor, Stoll, on the contrary, appreciated the discovery, as appears from certain passages in his works. In speaking of pleurisy, not only does he praise percussion highly as a diagnostic measure, but he tells us that Auenbrugger could probably not be surpassed in the number of cases of empyema he had treated by operation. Stoll's pupil, Eyerell, also alluded to Auenbrugger's discovery in words of praise. Unfortunately, Stoll's career as a teacher was short, his private life unhappy, and his authority suffered in consequence.

Outside of the Imperial City the reception of the work was not very different from that at home. One of the medical periodicals of the time (Ludwig's *Commentaria de rebus in scientia naturali medicina gestis*, Bd. 11, 1763), spoke of the "*Inventum Novum*" as a "torch destined to illumine the darkness of thoracic disease." One of the most important scientific journals (*Göttingen gelehrten Anzeigen*) did not even mention the work. Another (R. A. Vogel's *Neue med. Bibliothek*, Göttingen, 1766, Bd. 6) contains a review such as we not infrequently see now, written without any

knowledge of the book's contents, and confusing percussion with Hippocratic succussion, or the sound brought out on shaking the body when the thorax contains both air and fluid. Among the leading medical men of Germany, such as Reil, Peter Frank and Horn, a similar misconception prevailed. In France, Rozière, of the medical faculty of Montpellier, translated the *Inventum Novum* and published it with a work of his own, admitting, however, that he had never used percussion and also confusing it with succussion.

From these facts, it seems that the neglect before Corvisart was due not to personal jealousy so much as to indolence. That many read the book follows from the fact that Auenbrugger himself published two editions, and another was printed in 1775 in a collection of medical articles.

When we work among the records of that time we seem to find a difference in men's minds as compared with those of to-day. That was not merely an age of indolence, so much as it was an age of skepticism. Now we have just the opposite, great restlessness and curiosity, with an inexhaustible credulity. This seems to be the result as well as the concomitant of the remarkable discoveries of the century. It seems to have grown from the last century, and to have made enormous strides with the development of chemistry, histology, and physiology, with the birth and growth of bacteriology and the miraculous results in the treatment of myxoedema, rabies and diphtheria. Curiosity and credulity are of great value when an invention of moment is made. Koller announces his discovery of the anæsthetic properties of cocaine and at once, notwithstanding the high price of the drug, its effects are tested in hundreds of clinics. Röntgen announces his new rays and immediately, all over the world, physicists, clinicians and investigators apply the marvelous fact and improve its application. Unfortunately, the same quickness to take up new things is often just as pronounced when the discovery is worthless. Bergeon announces his absurd method of treating tuberculosis and at once a course of delusion follows, the result of which is never other than harmful. Bianchi puts forth the phonendoscope, with claims that could be shown by the exercise of a little thought to be preposterous. To disparage such claims, however, is a thankless task, and thousands give sums ridiculously in excess of the actual cost of the patented apparatus, and spend time that should have been devoted to well-tried methods of diagnosis, only to find that they had been swindled. Such a state of affairs involves many evils. In all times of rapid improvement in medical science actual practice lags far behind the advance line. The result is that the average ability appears to a superficial glance as immovably fixed in ignorance. Still worse, the rapid dis-

semination of news and the thirst for superficial novelty fill the mind of the public with errors difficult for the initiated to appreciate. If a qualified physician is unable to see any difference between the pathologic position of the malarial parasite and the bacillus icteroides, between the claims of Woodbridge and those for vaccination, between thyroid extract and *elixir vitæ*, why should we be surprised that a professor of mathematics holds to the doctrine of infinitesimals, that the electrician believes in the magnetic touch of a "nature healer," or that a woman eminent in philanthropy and not without experience in medicine, commends so ridiculous a swindle as the electropoise? A little of the coolness met by Auenbrugger would not seriously retard the introduction of any method of value now.

But there is another reason still for the neglect of Auenbrugger's discovery. In the beginning of every new method in diagnosis the function of the method is falsely conceived. Almost invariably and almost universally people seem to think the new method will render obsolete all previous knowledge and enable true diagnosis—the knowledge of the sick man rather than the labelling of him—to be dispensed with. The sign must be pathognomonic, the rule must have no exceptions. When experience, as it surely will, shows that the impossible has not happened, the subject is dismissed by the multitude with reproaches on those who introduced it. One of the most striking evidences of Auenbrugger's greatness of mind is the fact that he did not think he had discovered a diagnostic philosopher's stone. He himself used all other methods of diagnosis known at that time, was constantly looking for others, and was near to the discovery of palpation and possibly auscultation. Yet it is quite possible that the neglect of percussion in the early days was due largely to the limited value of that without the other methods of physical diagnosis. Men like Auenbrugger and Corvisart were able to do great things with percussion and the obvious symptoms, but the ordinary man, who could not take such pains, nor acquire their expertness, gave it up, and there were few who pursued the subject as a matter of scientific interest until the times of Piorry and Skoda. Even then, each new discovery, auscultation, microscopic and chemical examination, down to bacteriological examinations, has increased the importance of percussion in practical medicine, while it made diagnosis more complex and difficult, but more accurate than before.

What lesson then can we draw from this bit of history? This for one thing, that accurate knowledge and critical thought are more than ever necessary if one would pick out the discoveries of value in the rapid growth of medicine. More than ever is it necessary to know, as well as can be

known, the right from the wrong, the genuine from the false in medicine. For the beginner is the task of acquiring all of the "great and little world" he can in his medical course and by increasing his knowledge all the days of his life. He should aim to learn principles rather than facts, the fixed rather than the transitory. These are the methods we try to follow in the University of Michigan, and you will gain much if you realize early that everything you have to do as an undergraduate is intended for use in your future life. Not mere mental exercises are the tasks before you, to be forgotten after examination day, but things that must become part of you, and it may easily happen,—such is the rapid progress of your art, that the very course you think least valuable as you take it, will be the one most necessary when you enter practice.

"Life is short, the opportunity fleeting."

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